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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/481,327	01/12/2000	Yoshiyuki Takeuchi	DT-3300	5513

7590 04/08/2003

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1251 Avenue of the Americas
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EXAMINER

RIDLEY, BASIA ANNA

ART UNIT	PAPER NUMBER
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1764

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DATE MAILED: 04/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/481,327

Applicant(s)

TAKEUCHI ET AL.

Examiner

Basia Ridley

Art Unit

1764

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 January 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) 2 and 4 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 January 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 08/324,310.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election of invention I, claims 1 and 3 in Paper No. 4 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).
2. Claim(s) 2 and 4 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention.

Priority

3. Acknowledgment is made of applicant's claim for domestic priority under 35 U.S.C. 120. The specification should be amended to include current status of all referenced nonprovisional parent applications.

Specification

4. 35 U.S.C. 112, first paragraph, requires the specification to be written in "full, clear, concise, and exact terms." The specification is replete with terms which are not clear, concise and exact. The specification should be revised carefully in order to comply with 35 U.S.C. 112, first paragraph. Examples of some unclear, inexact or verbose terms used in the specification are:
 - lack of consistency with respect to various temperature ranges (e.g. page 2: pyrolysis of plastics at 3000C - 8000C; page 6: partial oxidation of plastics at 700 to 9000C; page 8: proper gasification range of 700 to 9001C; page 12: boiling range for hydrocarbons from room temperature to 700C; page 13: burning the plastic gas at 700 to 1000°C; page 11: heating GFRP material in gasification section to 650 to 750°C; page 14: heating the GFRP material to a temperature of 60 to 701C (line 1) and to a temperature of 60 to 70°C (line 11); page 15:

Art Unit: 1764

"hydrocarbon compounds having boiling point up to 750°C"; etc.);

- inconsistent spacing (e.g. on page 3, it appears that in line second from the bottom, the sentence starting "The present invention (...)" should start a new paragraph; "H /C" and "H/C" on page 8; page 32; pages 35-36; page 46; etc.);
- inconsistency in chemical formulas (e.g. "NOX" (page 6), "NO_x" (page 7), "H₂O" (page 8), "H" (page 8), "H 2" (page 9), "O₂/C" (page 19), "H₂O/C" (page 22), etc.);
- unclear recitations (e.g. "present 2 invention" (page 10), "the 1 ratio" (page 11), "plastic 1 component" (page 14), "H₂ 41" (page 18), etc.);
- missing units (e.g. on page 19, "O₂/C = 0.3" does not specify what kind of ratio (e.g. mole, weight or volume), etc.);
- inconsistent numbering of elements (e.g. "gasification section 1 and 2" (P32/L3), "gasification section 1" (throughout specification), "plastic gas 1" (P36/L16), "plastic gas A" (P38/L11), "plastic gas A₁" (throughout specification), "gas furnace 1" (P39/L15), "gas furnace 21" (throughout specification), etc);
- last column of Table 2 (page 34) lacks explanation of notation.

The applicant is reminded that the above instances are merely exemplary and that the disclosure should be carefully reviewed and revised to avoid unclear, inexact or verbose terms.

Drawings

5. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description:

- Fig. 2 does not show "A₂" as described on P28/L6;

Art Unit: 1764

- Fig. 3 does not show "heat recovery section 3" as described on P37/L16

Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

6. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because the following reference characters have been used to designate more than one element:

- "6" has been used to designate two different streams in Fig. 1 and 2;
- "7" has been used to designate two different streams in Fig. 1 and 2;
- "26" has been used to designate two different streams in Fig. 3 and 4;
- "27" has been used to designate two different streams in Fig. 3 and 4.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

7. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "A₂" in Fig. 1 and "5" in Fig. 2 have both been used to designate the same stream. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

The applicant is reminded that the above instances are merely exemplary and that the drawings should be carefully reviewed and revised to comply with 37 CFR 1.83 and 1.84.

Art Unit: 1764

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 1 rejected under 35 U.S.C. 103(a) as being unpatentable over Gravel (USP 3,847,664) in view of Babu et al. (USP 4,592,762).

Regarding claim(s) 1, Gravel disclose(s) similar process comprising the steps of:

- feeding a glass fiber reinforced plastic material to a gasification section (abstract);
- heating the material to a temperature of 60 to 700°C in the presence of oxygen and steam to gasify the plastic component thereof (abstract, C4/L1-15);
- recovering the remaining glass fibers (C7/L15-18).

While Gravel discloses that produced plastic gases comprise products of volatilization, vaporization oxidation and gasification of organic materials (abstract), the reference does not explicitly disclose that said plastic gases are further partially oxidized to form CO and H₂.

Babu et al. teaches that gas created by gasification and volatilization of organic materials can be partially oxidized to form gas with higher CO and H₂ content (C7/L3-44). Further the reference teaches that such oxidation is desired to produce more valuable products (C8/4-26).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to partially oxidize plastic gases produced in the system of Gravel, as taught by Babu et al. for the purpose of improving system economics by producing more desirable product gas.

10. Claim 3 rejected under 35 U.S.C. 103(a) as being unpatentable over Gravel (USP 3,847,664) in view of Hanson, Jr. et al. (USP 5,019,171).

Regarding claim(s) 3, Gravel disclose(s) similar process comprising the steps of:

- feeding a glass fiber reinforced plastic material to a gasification section (abstract);
- heating the material to a temperature of 60 to 700°C in the presence of air and steam to gasify the plastic component thereof (abstract, C4/L1-15);
- recovering the remaining glass fibers (C7/L15-18);
- introducing the resulting plastic gas into a combustion section (C6/L9-38);
- burning the plastic gas at a temperature of 700 to 1000°C in the presence of additional air or an additional mixture of air and steam (C6/L9-38).

While Gravel discloses that produced plastic gases are burned in a combustion section, the reference does not explicitly disclose that heat generated in said combustion section is recovered.

Hanson, Jr. et al. teaches that gases produced by gasification of glass fiber reinforced plastic material have substantial heat content, and that process economics can be improved by recovering some of said heat content in, for example, a waste heat boiler (C5/L30-53)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to recover waste heat in the system of Gravel in a waste heat boiler, as taught by Hanson, Jr. et al. for the purpose of improving system economics.

11. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35

Art Unit: 1764

U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Conclusion

12. In view of the foregoing, none of the claims are allowed.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner Basia Ridley, whose telephone number is (703) 305-5418. The examiner can normally be reached on Monday through Thursday, from 8:30 AM to 7:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola, can be reached on (703) 308-6824.

The fax phone number for Group 1700 is (703) 872-9311 (for Official papers after Final), (703) 872-9310 (for other Official papers) and (703) 305-6078 (for Unofficial papers). When filing a fax in Group 1700, please indicate in the Header (upper right) "Official" for papers that are to be entered into the file, and "Unofficial" for draft documents and other communication with the PTO that are not for entry into the file of the application. This will expedite processing of your papers.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0661.

Basia Ridley
Examiner
Art Unit 1764

BR

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April 4, 2003

[Signature]
JERRY D. JOHNSON
PRIMARY EXAMINER
GROUP 1100